

Icatibant

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of an 8-week home-based muscle strengthening program on pain, muscle strength, and knee proprioception in subjects with symptomatic knee OA and to examine relationships between pain, muscle strength and proprioception in these subjects.

Methods: Thirty-eight subjects with symptomatic knee OA were enrolled in the study. A home exercise program was developed in consultation with the medical center's physical therapy department. Subjects were taught three standard quadriceps strengthening exercises which were to be performed daily at home using a 5-lb ankle weight. Subjects recorded daily exercise performance in a diary. Pain, muscle strength and proprioceptive function were measured at baseline and after 8 weeks of exercise therapy. Pain was assessed with the Western Ontario MacMaster's Universities Osteoarthritis Index (WOMAC™) visual analog scale. Isokinetic quadriceps muscle strength and passive-active replication proprioceptive testing were performed using a Biodex™ isokinetic dynamometer. Paired *t* tests were used to examine changes in pain, strength and proprioception at baseline and post-intervention. Relationships between the factors were evaluated using Pearson and Spearman correlations.

Results: Significant improvements in pain (42%, $P < 0.001$) and quadriceps muscle strength (23%, $P < 0.001$) were noted after 8 weeks of home exercise therapy. Concomitant improvements in proprioception were not observed. There were significant negative correlations between baseline pain and both baseline muscle strength (Spearman = -0.35 , $P = 0.03$) and proprioceptive acuity (Spearman = -0.35 , $P = 0.03$). There were also significant associations between improvements in pain with exercise and improvements in muscle strength (Spearman = 0.42 , $P = 0.008$) and proprioception (Spearman = 0.41 , $P = 0.01$). Subjects with more severe pain and muscle strength deficits at baseline achieved the greatest improvement in pain and muscle strength, respectively, with the intervention.

Conclusions: An 8-week home exercise program resulted in significant improvements in pain and muscle strength in subjects with symptomatic knee OA. The fact that concomitant improvements in proprioceptive acuity were not observed in this study may suggest that proprioceptive deficits are independent of muscle strength deficits in knee OA or that alternatively, 8 weeks is not a sufficient period of time in which to achieve improvements in sensory deficits. Nevertheless, poorer proprioceptive acuity was found to be associated with increased pain at baseline and improvements in pain with exercise were associated with significant improvements in proprioceptive acuity.

Methods: This was a randomised, double-blind, placebo-controlled, parallel, multi-centre study.

At the screening visit, out-patients with symptomatic knee OA were supplied with an electronic patient diary (LogPad™) for daily assessments of pain, intake of rescue medication and PGA.

After a 1-week washout period, subjects returned for the baseline visit, were randomised, and received, after removal of the excessive synovial fluid, an intra-articular single-dose of 90 µg ITB diluted in 1.0 mL buffered saline, or respective placebo, into the affected knee joint.

Pain intensity was followed several times per day, and PGA and intake of rescue medication were followed once daily, for a total period of 6 weeks. Subjects returned for follow-up visits after 1, 3 and 6 weeks. Functional assessment of the affected knee joint was performed by answering a WOMAC questionnaire at these visits. Statistical analysis included the Chi-square test, differences in means, Wilcoxon-test, the trapezoid rule and Kaplan-Meier curves.

Results: One hundred fifty-nine subjects were screened and 113 were randomised and treated: 55 with placebo and 58 with ITB. Treatment emergent adverse events were experienced by eight subjects (14.5%) treated with placebo and six subjects (10.3%) treated with ITB. Responder rates for mean pain reduction of at least 21 VAS units were consistently higher during the first week after single-dose injection, for the ITB treatment group compared to the placebo treatment group, for both pain at rest and pain during activity. The reduction in WOMAC scores was similar in both groups.

PGA for both groups decreased, with a greater decrease observed for subjects treated with ITB compared to placebo.

Conclusion: Here we present the first evidence of a therapeutic effect of ITB in the treatment of symptomatic knee OA. ITB administered as a single intra-articular dose was safe and well tolerated. Intra-articular administration of ITB was shown to result in higher responder rates for mean pain reduction. It is interesting to note that the bigger effect of ITB regarding pain during activity as compared to pain at rest was due to a lower change from baseline in the placebo group rather than to an increased change from baseline in the active treatment group. Consumption of rescue medication was correspondingly reduced in subjects treated with ITB.

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BRADIKININ-RECEPTOR-INHIBITION – A THERAPEUTIC OPTION IN OSTEOARTHRITIS?

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In humans the most relevant effects of bradykinin (BK) are thought to be mediated through B2 receptors, while the role of B1 receptors still remains obscure and is possibly induced during chronic inflammation. In numerous *in vitro* and preclinical *in vivo* studies, icatibant (ITB) has been shown to be a potent inhibitor of BK effects, with high metabolic stability in different organ systems. This suggests ITB as an appealing therapeutic option, administered by intra-articular injection.

Aim of the study: (1) To compare the extent and course of pain relief in the affected knee joint between ITB and placebo using a visual analogue scale (VAS). (2) To compare ITB and placebo for safety and the efficacy variables: time until need of rescue medication; WOMAC index; and patient's global assessment (PGA).

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THE EFFECT OF ARTHROSCOPIC DEBRIDEMENT, MICRO-FRACTURING, AND HIGH TIBIAL OSTEOTOMY IN THE TREATMENT OF VARUS GONARTHROSIS

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Aim: The goal of this prospective study was to determine the effect of chondral debridement vs microfracturing and the effect of an additional high tibial osteotomy (HTO) in case of varus gonarthrosis (VGA) of the knee.

Methods: A total of 210 patients who were suffering from VGA underwent operative treatment.

The patients underwent arthroscopic debridement (group A, $n = 61$), arthroscopic microfracturing (group B, $n = 39$), chondral debridement and HTO (group C, $n = 44$) or microfracturing and HTO (group D, $n = 34$).

The HTO was performed as opening-wedge osteotomy by using an internal fixation (c-plate).

The Lysholm score and the level of pain (visual analogue scale ranging from 0 to 100) were determined preoperatively and at the time of follow-up after 48.5 ± 5.6 [range 34–60] months.

A total of 22 patients (group A: $n = 15$, group B: $n = 4$, group C: $n = 3$) required allarthroplasty, one patient from group A died and a total of nine patients were not available.

Finally, a total of 178 patients were available for a follow-up (Table I).

Results: In tendency, patients from groups A and B had an increased Lysholm score, and the intensity of pain was reduced.